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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,353	02/12/2004	Kenneth C. Johnson	TWI-30510	5063

28584 7590 12/13/2004

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EXAMINER	
TSAI, CAROL S W	
ART UNIT	**PAPER NUMBER**
2857	

DATE MAILED: 12/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/777,353	JOHNSON ET AL.	
	Examiner	Art Unit	
	Carol S Tsai	2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *12 October 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent No. 5,844,684 to Maris et al. in view of U. S. Patent No. 6,211,921 to Maris.

With respect to claims 1 and 5, Maris et al. disclose a method of evaluating a diffracting structure formed on a semiconductor sample comprising the steps of: including interpolation points and associated theoretical optical response characteristics, each interpolation point corresponding to a sample parameter set and with the associated theoretical optical response characteristics being determined by applying a sample model to each of the parameter sets (see Abstract, lines 13-17; col. 4, lines 29-45; and col. 7, line 59 to col. 8, line 21); measuring the actual optical response characteristics of the sample (see col. 4, lines 46-60 and col. 14, line 51 to col. 15, line 8); and iteratively interpolating between the interpolation points using an interpolation model that defines a substantially continuous function which intersects with the interpolation points in order to derive a set of interpolated optical response characteristics that best fit the actual optical response characteristics to evaluate the sample (see col. 3, line 58 to col. 4, line 3; col. 7, lines 46-51; and col. 17, line 64 to col. 18, line 9).

Maris et al. do not disclose creating a database.

Maris teaches creating a database (see col. 25, lines 11-18).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Maris et al.'s method to include creating a database, as taught by Maris, in order that data can be stored.

As to claims 2 and 6, Maris et al. also disclose the optical response characteristics being in the form of one or both of complex reflectance coefficients and scattering matrices (see col. 15, lines 9-22).

As to claims 3 and 7, Maris et al. also disclose said optical response characteristics being created and measured as a function of wavelength (see col. 7, lines 52-58).

As to claims 4 and 9, Maris et al. also disclose said interpolation model utilizing one or more of linear, multi-cubic, and quadratic functions (see col. 17, lines 6-19).

As to claim 8, Maris et al. also disclose measuring reflectance of the sample (see Abstract, lines 1-5).

As to claim 10, Maris et al. also disclose calculating a theoretical optical signal from the model (see col. 3, lines 41-45).

Response to Arguments

3. Applicant's arguments filed October 12, 2004 have been fully considered but they are not persuasive.

Applicants argue that Maris mentions "interpolating between reference samples to obtain an intermediate set of material properties". However, Maris never mentions anything about the type of interpolation he intends to use, that presumably, Maris would use a standard interpolation

approach which have various drawbacks of the type discussed in the background section of this application, that certainly, Maris contains no suggestion of "interpolating between the interpolation points using an interpolation model that defines a substantially continuous function which intersects with the interpolation points". The Examiner disagrees with Applicants. Since "The interpolation model is used by a fitting optimization algorithm that determines measurement parameters of a sample based on a measured optical signal characteristic of the sample" as described at page 8, lines 23-25 clearly indicates what is meant by interpolation model, as set forth above in the art rejection, Maris et al. do disclose using an interpolation model that defines a substantially continuous function which intersects with the interpolation points in order to derive a set of interpolated optical response characteristics that best fit the actual optical response characteristics to evaluate the sample (see col. 3, line 58 to col. 4, line 3; col. 7, lines 46-51; and col. 17, line 64 to col. 18, line 9).

Contact Information

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carol S. W. Tsai whose telephone number is (571) 272-2224. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (571) 272-2216. The fax number for TC 2800 is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2800 receptionist whose telephone number is (571) 272-1585 or (571) 272-2800.

In order to reduce pendency and avoid potential delays, Group 2800 is encouraging FAXing of responses to Office actions directly into the Group at (703) 872-9306. This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a PTO deposit account. Please identify the examiner and art unit at the top of your cover sheet. Papers submitted via FAX into Group 2800 will be promptly forwarded to the examiner.

Carol S. W. Tsai
Patent Examiner
Art Unit 2857

12/08/04